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Geocoding The Business Register at the Bureau of Labor Statistics

1. Introduction

The advent of powerful computing capabilities and mapping software now allows more sophisticated analysis of new and existing problems through the visual display of information. The centerpoint of these new features is the ability to provide pinpoint locations for geographic features. These locations are defined by precise latitude and longitude coordinates, called geocodes. In any geocoding system involving businesses, the key is to have accurate physical location addresses.

This report profiles the growing needs for geocoded data, examples of existing applications and early efforts to obtain and use geocoding for the Bureau of Labor Statistics (BLS) establishment list in the ES-202 Covered Employment and Wages program.

2. ES-202 Covered Employment and Wages

The ES-202 is a by-product of the Unemployment (UI) system and is managed in a federal/state cooperative system. BLS provides policies, standards and funding and states collect, edit, tabulate and publish the data.

Under the laws of each state, businesses are required to report each quarter the number of employees for the three months, and quarterly total wages, taxable wages, contributions and other related data. After these UI reports are collected and entered by the state, they are passed to the state ES-202 unit for review, editing, publication and use as the business register.

In addition to the UI reports, BLS funds two other collections to support the needs of its users. The first is the Annual Refiling Survey (ARS) that, over a three-year period, contacts all businesses to update or complete industry codes, auxiliary status and addresses. This is the primary method for obtaining and updating physical location addresses. The second is the quarterly Multiple Worksite Report (MWR) that collects data for each individual establishment of a multi-unit business. The combination of information from these three sources comprise the resulting ES-202 Covered Employment and Wages program.

3. Present Geographic Coverage

The ES-202 provides monthly employment and quarterly wage data for the nation, states, Metropolitan Statistical Areas (MSA) and counties. These are derived through the lists of over 8 million business establishment locations summed to these levels using state and county codes. MSA are counties or groups of counties. Counties can be quite small and rural or very large and urban with vastly differing employment.

4. Current and Potential Range of Uses

Historically, the ES-202 has provided economic data down to the county level. Now, demands for more data are providing an incentive to provide data for cities, towns, and even smaller areas. The original goal for geocoding in the ES-202 was to develop sub-county level employment and wage data, such as for cities, towns, or other political boundaries. Also, Section 308 of the Workforce Investment Act of 1998 demands the development of timely, accurate, local economic data. We are striving to meet that demand and the availability of geocoded data would provide the capability to use a variety of lower level aggregations, including cities, postal zip codes and natural boundaries such as

floodplains. At the most detailed levels, geocoded business addresses are valuable to transportation planning where approximate locations are inadequate. For this purpose, the side of the street, the location along the block and the exact corner of an intersection is critical to optimal planning of bus lines and other public transportation.

Local data are needed for other purposes including economic clustering and business location research, economic development planning, crime assessment, environmental assessments and weather-related disaster planning and assessments.

The basic ability to locate firms geographically is shown in Figure A. The State of Maine sought to address the closing of a shoe factory by facilitating the job match process for the displaced workers. In this case, the state used the existing addresses to locate other firms in the leather and leather products industry (SIC 3100). Then, by drawing a 35-mile radius from the closed plant to approximate a reasonable commuting pattern, the closest firms were identified. These relatively close firms were then invited to a job fair with the displaced workers.

Also, a more sophisticated example of innovative use of a series of features that supports information-based decision-making is shown in Figure B. In this example, the goal is to reduce barriers to entry to the labor force of those individuals receiving public assistance. The business locations, as sources of jobs, are mapped versus those institutions that would support those individuals being available for work. These include public transportation routes, child-care centers, medical facilities, and job training sites. The locations of the individual households receiving income assistance are also shown in colors revealing only relative densities. Areas underserved by bus lines, for example, can have new or redrawn routes established. With further analysis of the industries of the business locations may also lead to changing bus timing to allow for several shifts.

Figure A.

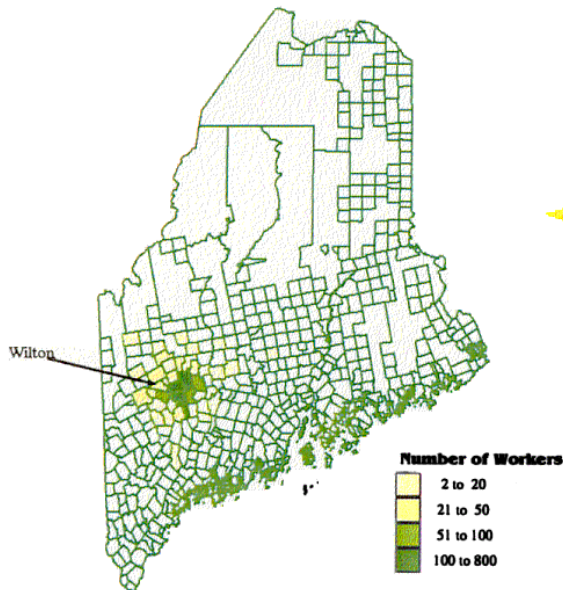
Business Geographics Aids in Relocating Displaced Employees

The G. H. Bass & Co. Closure

In February 1998, Bass announced the closure of its manufacturing plant in Wilton, Maine. This action is putting 350 people out of work, many of them skilled leather workers. As part of a Maine Dept of Labor initiative to assist the displaced workers, the Division of Labor Market Information used its business geographics software to locate potential employers for these workers.

There were two criteria for the selection of potential employers:

- 1) they must be in industries that employ skilled leather workers, and*
- 2) they must be within a reasonable commuting time and distance from the displaced employees homes.*



Step 1. Finding out where workers live

With commuting patterns from the 1990 US Census, this map is able to show where people working in the town of Wilton live. These numbers reflect all workers, not just Bass employees.

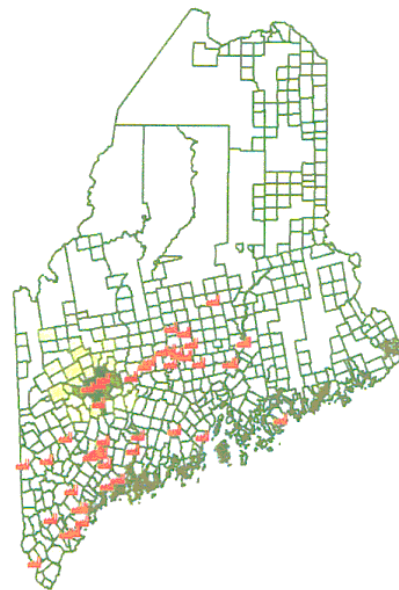
As can be seen expected, there is a definite clustering around the town of Wilton. The focus of this project was those areas with over 20 commuters.

Step 2: Finding Leather Manufacturing Firms

Staffing patterns in Maine show that the majority of leather workers are employed by firms coded as SIC (Standard Industrial Code) 31 - Leather and Leather Products.

All firms in SIC 31 were then extracted from the ES-202 database and converted to a format which could be imported to the business geographics software.

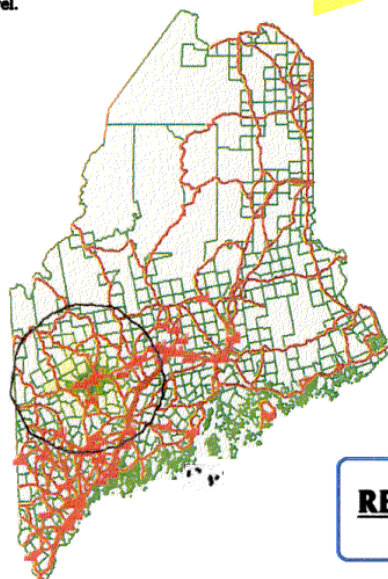
Once imported, these firms were geocoded for proper analysis and display on the map. Two thirds were able to be geocoded to street address, while the remainder were geocoded to the ZIP code level.



Step 3: Putting it All Together

As a guide, a 35 mile radius was drawn centered around Wilton. This distance was chosen as a reasonable commuting distance for most workers. Highways were then added to show linkages between towns.

All firms within the radius were included in the final report. In addition, those just outside the circle, but on major highways were included as they were also considered within reasonable commuting distance due to ease of travel.

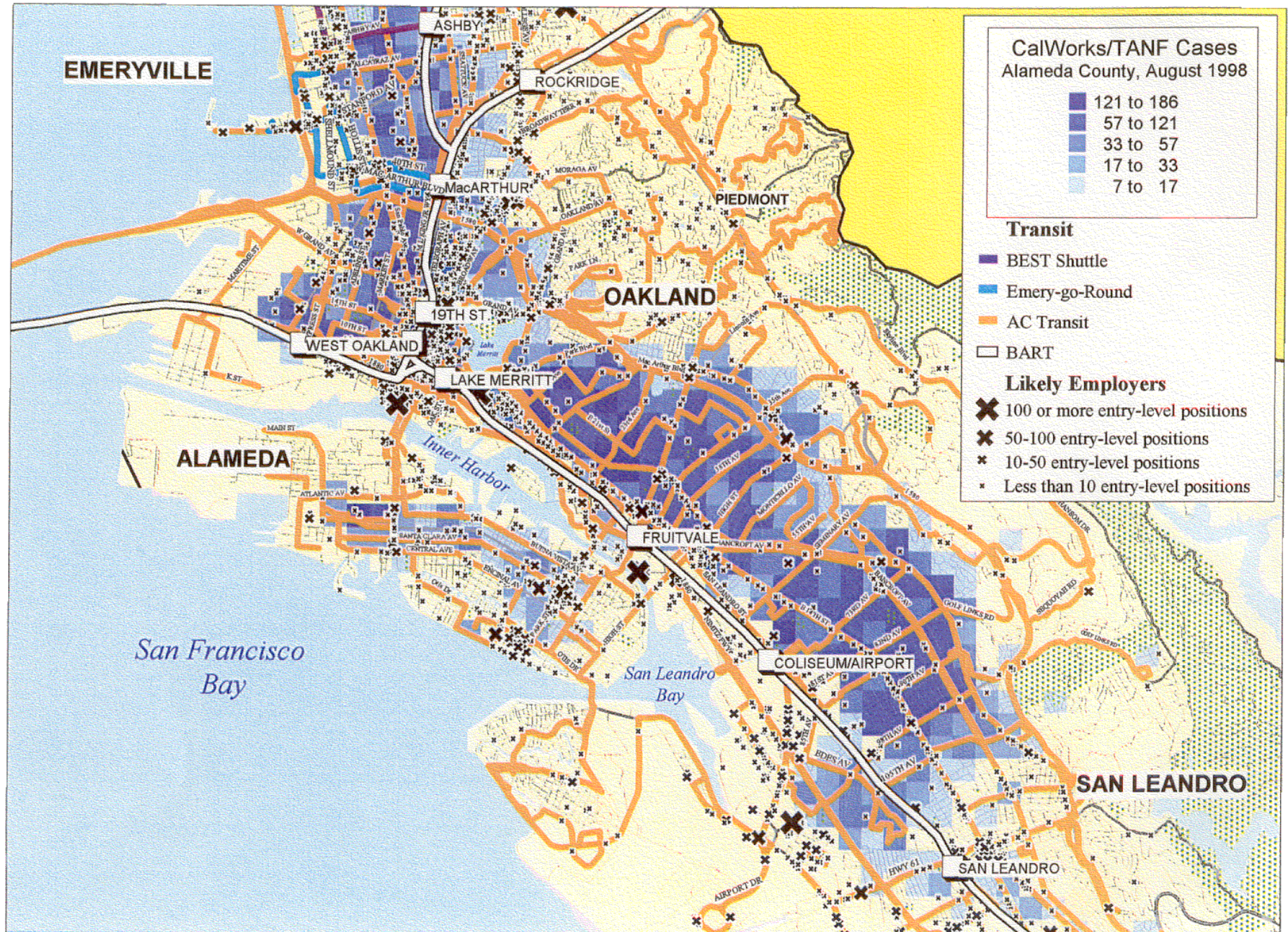


RESULT:

A listing of thirty firms in SIC 31XX - Leather and Leather Products - which were considered potential future employers for those no longer employed by G. H. Bass & Co. was produced. From this listing, employers were recruited to participate in a job fair for former Bass employees.

~Maine Department of Labor~

Figure B.



With this mechanism, the local and regional planners evaluate the allocation of millions of dollars in public infrastructure and shape and reshape their use to address specific and changing needs.

The last example outlined here is the result of the tragic events in New York of September 11, 2001. In the aftermath of the New York and Pentagon terrorist attacks, emergency officials, economists and other groups reacting to these events needed information on the employment in the areas affected in lower Manhattan.

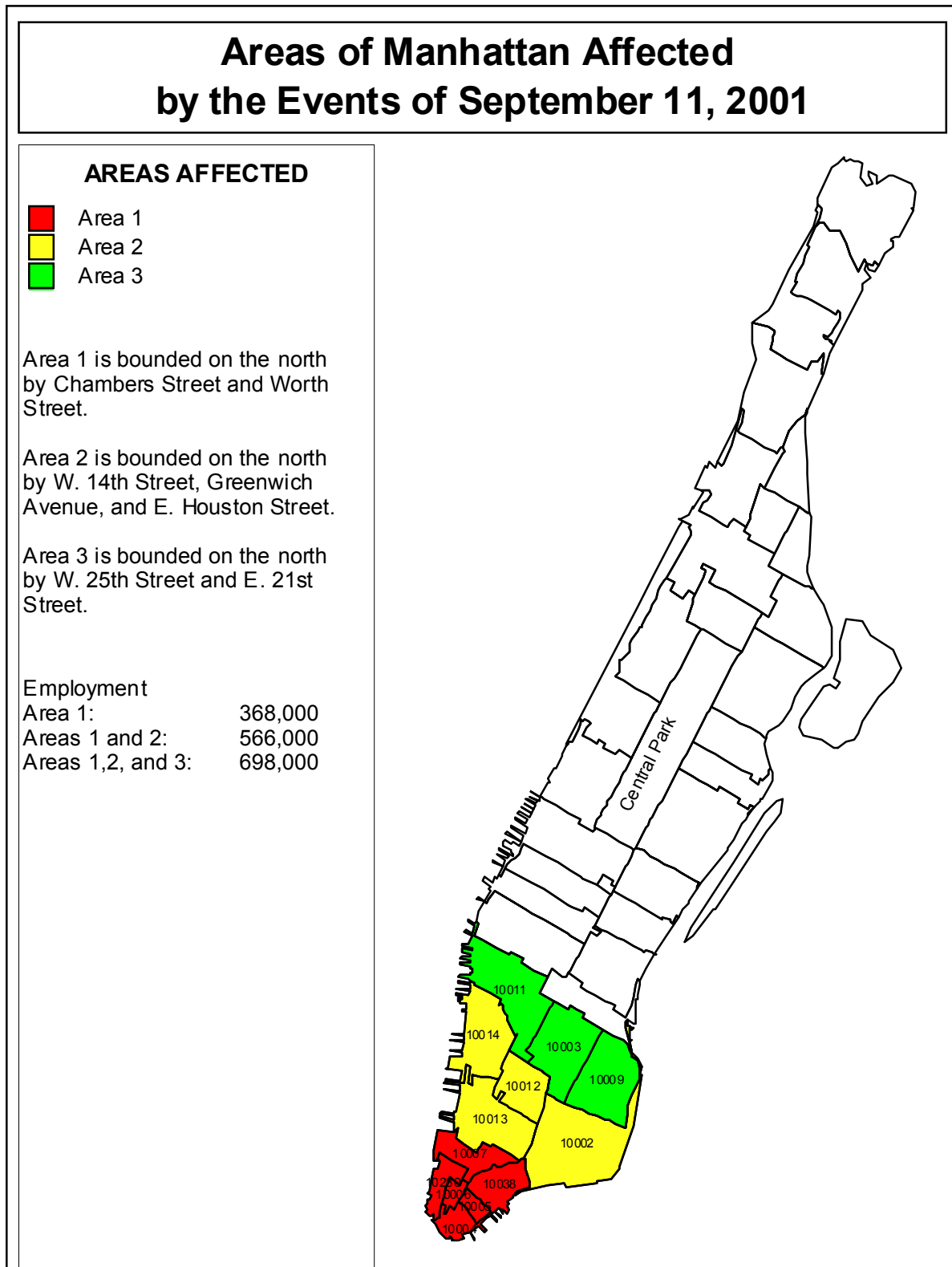
BLS and the New York Department of Labor conducted an analysis of the employment in three progressively larger areas starting at the World Trade Center and surrounding parts of lower Manhattan. The area boundaries attempted to reflect the areas defined by New York officials for restricting public access during rescue, recovery and clean up. The three areas were 1) immediately surrounding the World Trade Center, 2) the area below Canal Street, and 3) the area below 14th Street that was restricted in the immediate days following the tragedy to allow rescue workers clear transportation of equipment and emergency vehicles to hospitals and to remove debris. See Figure C.

The resulting employment data were used by the Federal Reserve, the Council of Economic Advisors, and the State of New York for understanding the human and economic impact of these tragic events. The existing county that includes these areas is New York County, also known as Manhattan. However, this analysis was conducted using the only available geographic definitions below the county level. In this case, zip code boundaries were used to approximate the areas restricted at varying levels and for varying durations. However, zip codes can be quite large and may not closely correspond to the areas involved in this or other event. These events point to the critical need for available, high-quality geocoded data for emergency planning and disaster assessment.

5. Federal Government Geographic Data Coordinating Committee

Within the US government, the Federal Geographic Data Committee (FGDC) is the coordinating body. Representatives of agencies such as National Aeronautics and Space Administration (space), Federal Emergency Management Administration (emergencies), Health and Human Services (HHS), Bureau of the Census (demographic data), and others define and set standards and share information and progress. The US government coordinating unit is the Department of the Interior, as specified by the Office of Management and Budget Circular A-16. A specific goal is to expand the knowledge and use of geospatial information, to set standards for consistency of data across agencies and to reduce the duplication of efforts and costs. Members of this group have been very responsive to BLS requests for assistance.

Figure C.



6. Confidentiality

The issue of confidentiality is limiting the full potential of the geocoded data, just as it does for the basic economic data. Under BLS policies, the name and address of a business, as well as the industry code, and other data are considered confidential. The confidentiality of this information is essential for the full faith in the Bureau's data collection efforts.

Geocoding of business locations raises new confidentiality issues and questions about what is confidential. For example, does the location of a "dot" on a map at a certain intersection, denoting a business location represent a disclosure? If the dot is shown at such great distance where only the approximate location is discernible, as seen in the Maine example in Figure A, does a disclosure happen? The name and address of the individual business has not been disclosed, just that a business is located there or approximately there. Also, do "dots" of various sizes, representing employment ranges, represent disclosures? Further, is a "dot" on a map showing locations of firms in manufacturing, high level industry code, a disclosure, versus a "dot" showing location of a firm in leather goods manufacturing, a detailed industry code? The ES-202 program is beginning a review of regulations, practices and policies regarding confidentiality.

While BLS sets standards for its own publication, each state also defines its publication criteria based on each state's laws. There is a wide spectrum of definitions and interpretations of these laws. For example, whereas Wisconsin publishes the name, address and employment for each business, Maryland publishes only disclosure processed macrodata. The above graphic examples from Maine and California have been approved for external dissemination.

These issues may limit the provision of such data outside the statistical enclave. Still, BLS provides access to microdata under strict confidentiality rules for such studies and analyses.

7. Availability of Physical Location Addresses

The primary process for obtaining physical location addresses is through the annual industry coding process using the Annual Refiling Survey (ARS) forms. Each year, one-third of the businesses are mailed a form to obtain or verify the industry code or description, its business status, single versus multi-unit status, and both its mailing and physical location address.

Currently, the ability to geocode the existing addresses is:

- one third have addresses and can be geocoded
- one-third have addresses and cannot be geocoded
- one third do not have physical location addresses

Those without physical location addresses are predominately new and small businesses as described in greater detail below.

8. Current and Future Improvements in Addresses

There are efforts to improve the availability and accuracy of the physical location addresses. The primary effort is through a redesign of the ARS form. In the older versions, the physical location address was not emphasized. This has been strengthened by its prominence on the first page and through the overall redesign to be more user-friendly. An example is shown in Figure D.

Within the next two years, BLS will initiate efforts to more directly obtain geocodable addresses. In the beginning, the largest firms for which usable addresses are missing will be contacted, then progressing to the smaller establishments over time.

Also, ongoing efforts to improve the reporting of Professional Leasing Organizations, also known as employee leasing firms, will aid in allocating employment and wages to the individual counties, industries and to the actual business location.

External to BLS, the efforts to have addresses for every household and business to support the rapid delivery of emergency service is likely to make a dramatic improvement in the availability and accuracy of addresses in smaller towns, villages and rural settings. As seen below, the use of Rural Route designations, adequate in the past for postal delivery, causes a problem for modern geospatial data. This “911” effort includes replacing “rural route” or “lot number” designations with actual street addresses.

9. Geocoding State Data: Introduction and Methodology

There are two methods for deriving a geocode. This first and more precise is to use the physical location address. The second is to approximate the location using zip codes. In this case, the unit is assigned the geocode for the centroid of the zip code. For the purposes of the research profiled below, we are focusing on issues and findings based on the physical location address.

For the purposes of geocoding establishments, we wanted to determine the reliability of the state data concerning Physical Location Address (PLA) fields in the ES-202 microdata. For geocoding to be effective, address fields must be accurate and valid. This analysis is on the state, county and national level. Due to space constraints, California had to be omitted.

Extracts of the state files were created using the microdata from second quarter, 2000. These data include information on address fields, multi/single establishment employer codes, Employment Identification Number (EIN), Unemployment Identification (UI), Ownership type, SIC code, Initial Liability Date, Zip Codes, and Month Three Employment (June 2000). Additional information for Industry and Size Class were also examined.

Figure D.

Industry Verification Form, BLS 3023 NVS

Form Approved, O.M.B. No. 1220-0032

UTANA DEPARTMENT OF LABOR AND INDUSTRY

In cooperation with the U.S. Department of Labor



1

This report is authorized by law, 29 U.S.C. 2. Your voluntary cooperation is needed to make the results of this survey complete, accurate, and timely.

2

The questions on this form concern the work location(s) using Unemployment Insurance account number **1234567890 IN UTANA.**

XYZ ADVISORS
PO BOX 5555
SOMECITY UA 12345-5555

3

We need the name and direct mailing address for the business using this Unemployment Insurance account, regardless of who prepares the form. This information does not affect mailings for tax purposes. Are the name and mailing address shown in Item 2 correct for the business using this Unemployment Insurance account?

☐ YES ☐ NO Please **print** corrections or additions to the right of the printed address in Item

2.

☐COMPANY PERMANENTLY OUT OF BUSINESS OR MOVED OUT OF **UTANA**

4

..... Enter date closed or moved: _____ **SKIP to Item 9 on the back of this form**

In addition to your mailing address, please tell us where your business is **physically** located (street and number). The physical location address is the place where you conduct your business and receive deliveries, so it cannot be a Post Office Box or a rural route number.

Our records show that this business in Utana is physically located at:

1310 SILVER STREET
4TH FLOOR
SOMECITY UA 12345-5555

Is this address correct for the location in Utana?

5

Is the following information correct for the address in Item 4? **UTANA COUNTY/TOWN: WATERCRESS/ROCKYSTEP**

☐ YES...Continue with Item 6

☐ NO.....Please print corrections in this space and then continue with Item 6

6

According to our records, the business operating under Unemployment Insurance account 1234567890 in Utana is part of a larger company or organization and mainly operates in support of other locations of the company. Is this correct?

[] YES, we are part of a larger company and we MAINLY support other locations of OUR company

[] NO, we MAINLY provide goods and services to the general public

7

Does this business have a website?

☐ YES...Please enter your website address here.

.....Continue with Item 8

8

Does the business using Unemployment Insurance account **1234567890 IN UTANA** have only one physical location in this state? (Do not count client sites or offsite projects that will last less than a year.)

☐ YES (One physical location)....Continue with Item 9 on the back

☐ NO (More than one physical location)..... Please attach a separate sheet. For each site, (1) list physical location address, (2) show number of employees, and (3) answer Items 6 and 9 - 11. Continue with Item 9

PLEASE CONTINUE WITH ITEM 9 ON THE BACK OF THIS PAGE.

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First, a file was created to determine the total number of active establishments. Second, a 'Missing' file was created to determine the total number of active establishments with missing address fields. Finally, a 'Bogus' file was created to determine which address fields were invalid: Address fields that are completed but listed as 'N/A', P.O. Box, or 'Statewide' are all considered invalid. These three files form the basis for the analysis.

10. Findings:

Size Class: The percentage of units with physical location addresses are shown by State and size class in Table 1. The expected trend is a decline of missing PLAs as size class increases. As an establishment's employment increases the importance of recording address information also increases.

The percentage of establishments missing PLAs decreased until size class 5, and increased thereafter. Nationally, size class 1, 5, and 9 reported 40.9 percent, 22.5 percent, and 31.5 percent respectively. The majority of the states and industries followed this trend.

Industry: The Standard Industry Classification (SIC) code was used to determine the appropriate industry type. Services reported the highest percent of the total establishments at 36.4 percent. Public administration held the least percentage, accounting for 1.7 percent of all the total establishments.

Nationally, 35.8 percent of establishments were missing PLAs. Public Administration and Non-Classified industries reported a high percentage of missing PLAs with 73.2 percent and 66.3 percent respectively. Although they made up less than 4 percent of the total establishments, they contributed to almost 8 percent of the total missing establishments. Construction and Mining accounted for 10.6 percent of the total establishments and had 43.3 percent and 41.9 percent of their establishments missing PLAs, respectively. Services contributed 36.2 percent to the total establishments missing PLAs.

Age of Firm: The age of the firm is an important factor in having a geocodable address. The initial liability date is used to determine when the establishment opened for business. For second quarter 2000 data, establishments that started after June 1, 1999 were reporting a disproportionate amount of missing addresses.

Although new establishments accounted for a minority of total establishments (12.5 percent), the percentage of new establishments missing PLAs (54.5 percent) was greater than the national average of 35.8 percent. Establishments with initial liability dates before June 1, 1999 reported a lower rate of missing PLAs (33.1 percent). Thus, the existing processes within the ES-202 program do improve the availability and accuracy of addresses over time, although much work is needed. A weakness will always be that very new businesses will be difficult and expensive for which to obtain addresses.

Table 1. Percent of Units Without Physical Location Addresses by State and Size Class

State	Total	Number of Employees in Size Class										Total
		0	1-4	5-9	10-19	20-49	50-99	100-	250-	500-	1000	
Alabama	113,068	70%	58%	42%	37%	32%	30%	32%	37%	38%	41%	50%
Alaska	18,901	54%	37%	29%	27%	32%	38%	44%	49%	63%	53%	36%
Arizona	116,547	49%	41%	30%	28%	26%	26%	24%	33%	36%	38%	37%
Arkansas	718,819	27%	21%	14%	12%	11%	11%	7%	7%	5%	7%	18%
Colorado	148,229	41%	42%	35%	31%	26%	25%	23%	20%	22%	14%	37%
Connecticut	108,258	68%	47%	27%	24%	23%	21%	19%	20%	24%	16%	40%
Delaware	24,468	82%	77%	58%	48%	43%	38%	32%	35%	35%	11%	67%
District of Columbia	29,003	40%	25%	19%	19%	22%	24%	22%	27%	42%	59%	27%
Florida	451,191	54%	46%	33%	29%	26%	25%	23%	29%	33%	39%	41%
Georgia	234,660	22%	13%	8%	8%	8%	7%	8%	9%	13%	9%	12%
Hawaii	33,665	17%	9%	6%	7%	10%	13%	25%	35%	38%	33%	10%
Idaho	45,491	30%	20%	11%	11%	10%	11%	14%	14%	27%	11%	18%
Illinois	323,117	47%	38%	24%	19%	14%	8%	5%	5%	5%	8%	31%
Indiana	152,899	35%	18%	11%	11%	12%	14%	14%	17%	21%	21%	17%
Iowa	96,079	64%	50%	38%	30%	24%	19%	16%	13%	15%	11%	43%
Kansas	81,341	70%	64%	53%	48%	43%	41%	43%	40%	44%	58%	57%
Kentucky	107,887	40%	33%	24%	23%	23%	21%	20%	21%	19%	20%	30%
Louisiana	118,277	36%	31%	25%	24%	23%	23%	24%	27%	35%	35%	29%
Maine	44,911	61%	43%	23%	17%	12%	9%	7%	10%	5%	0%	34%
Maryland	146,675	84%	73%	54%	48%	44%	39%	42%	51%	59%	68%	65%
Massachusetts	189,852	26%	17%	7%	6%	5%	3%	2%	1%	2%	0%	13%
Michigan	258,100	92%	94%	87%	83%	77%	71%	68%	71%	62%	60%	88%
Minnesota	154,174	16%	14%	9%	7%	7%	6%	4%	4%	2%	3%	11%
Mississippi	63,990	40%	25%	15%	13%	12%	14%	17%	19%	18%	18%	21%
Missouri	161,027	52%	39%	25%	20%	18%	14%	13%	13%	13%	16%	32%
Montana	38,223	72%	70%	67%	64%	59%	51%	53%	49%	71%	100%	68%
Nebraska	52,210	34%	25%	18%	17%	18%	17%	19%	22%	20%	29%	22%
Nevada	49,763	38%	26%	16%	13%	12%	9%	11%	12%	14%	13%	21%
New Hampshire	49,739	26%	15%	5%	4%	3%	3%	2%	3%	0%	0%	11%
New Jersey	292,049	13%	9%	5%	4%	5%	5%	5%	7%	11%	9%	9%
New Mexico	47,914	25%	17%	10%	11%	12%	13%	15%	17%	17%	23%	15%
New York	525,649	40%	36%	24%	20%	18%	16%	16%	20%	26%	26%	30%
North Carolina	223,106	46%	36%	23%	18%	15%	11%	12%	16%	19%	22%	29%
North Dakota	23,139	45%	25%	18%	16%	15%	18%	13%	29%	27%	20%	24%
Ohio	284,089	67%	54%	39%	34%	31%	30%	29%	34%	38%	38%	46%
Oklahoma	88,859	42%	28%	17%	15%	15%	15%	15%	16%	16%	21%	24%
Oregon	111,778	42%	31%	22%	21%	22%	23%	26%	30%	44%	49%	28%
Pennsylvania	311,270	69%	55%	41%	36%	31%	28%	28%	32%	38%	46%	48%
Rhode Island	33,383	59%	43%	25%	21%	21%	21%	19%	28%	24%	36%	37%
South Carolina	113,902	65%	47%	34%	29%	25%	25%	27%	29%	33%	38%	43%
South Dakota	26,987	34%	15%	7%	5%	4%	3%	3%	3%	0%	0%	12%
Tennessee	125,998	84%	83%	71%	65%	62%	53%	53%	58%	62%	68%	75%
Texas	485,000	80%	74%	61%	55%	48%	44%	44%	48%	51%	57%	65%
Utah	65,504	41%	24%	11%	8%	6%	4%	3%	4%	3%	7%	18%
Vermont	23,835	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Virginia	192,262	41%	31%	17%	14%	14%	15%	17%	23%	24%	27%	25%
Washington	217,494	2%	2%	2%	2%	3%	4%	5%	7%	12%	12%	2%
West Virginia	47,001	72%	51%	33%	29%	26%	23%	21%	26%	13%	18%	43%
Wisconsin	144,557	58%	45%	34%	32%	29%	28%	30%	39%	43%	45%	40%
Wyoming	20,884	25%	12%	8%	8%	10%	12%	18%	18%	20%	50%	12%
Total	6,884,224	47%	41%	30%	27%	25%	22%	23%	26%	29%	31%	36%

Ownership: There are four separate categories for ownership; public sector, which comprises Federal, State, and local governments, and private sector. The vast majority of establishments are privately held and accounted for 96.7 percent of the total establishments while the public sector accounted for 3.3 percent of the total establishments.

Public sector establishments reported a significantly higher percentage of missing PLAs than the private sector. Although the public sector accounted for such a small percentage of the total establishments (3.3 percent), they contributed nearly 9 percent to the total missing establishments. The rates of establishments missing PLAs from Federal, State and local government were 78.3 percent, 66.1 percent, and 45 percent respectively, versus 35.1 percent from the private sector. At the local government level, separate reporting of such establishments as individual schools is poor. While county-wide totals were suitable in the ES-202 program in the past, under geocoding, such employment centers and institutional distributions are important features to improve.

Urban/Rural: Surprisingly, there is little difference between urban and rural counties. An urban county is defined as a county within a Metropolitan Statistical Area (MSA). A rural county is not within in a MSA. Urban counties make up a large portion (74.5 percent) of the total establishments.

Nationally, rural counties accounted for 20.1 percent of total establishments while contributing 19.1 percent to the total establishments missing PLAs. Similarly, urban counties comprised 74.5 percent of total establishments and 69.4 percent of the total establishments missing PLAs. States that had a high percentage of missing PLAs in rural counties also had a high rate of missing PLAs in MSA counties.

Units without Specific County Codes: Non-Classifiable

There are some units for which we do not have county codes accounting for 5.1 percent of the total establishments. The vast majority of this units (97 percent) are coded as statewide reporters or have unknown county codes.

The analysis showed that an establishment listed as non-classifiable is very likely to have a missing a PLA. Establishments coded as statewide or unknown were missing 91.1 percent and 78.3 percent PLAs respectively. Although non-classifieds contributed a small percentage (3.9 percent) of the total establishments, their share of the total establishments missing PLAs was 11.6 percent. This was significant since we expected a similar percentage of total establishments and total establishments missing PLAs.

Unmatched records indicate that the 202 record did not have an exact address match to an address in the Centrus Address Database. An unmatched record may be either blank or filled. A filled unmatched record may be geo-coded at the zip-code level if there is not a direct address match.

Reasons for Non-Match to Geocode File:

- 1) The 202 PLA field is not filled with an address or a legitimate address.
 - The address is misspelled.
 - The address is not specific enough. Example *'Route 6'*.
 - The address is a location and not an address. Example *'Fedex Field'*, *'White Flint Mall'*.
 - The address starts with a non-street word. Example *'Corner 16th and Columbia'*.
 - The address is not an address at all, and is the name of the business or a random word. Example *'Inc'*.
- 2) The 202 address is not in the database. Examples of this include:
 - New streets that have not made it into the database yet.
 - Streets located in rural areas.

11. Geocoding of Physical Location Addresses

The physical location addresses for 6 states were geocoded using Centris software. The results are shown in Table 2. There is wide variation among states ranging from 35 percent to 87 percent. Understanding this variation is central to planning improvements for the future.

Table 2. Results of Geocoding 6 States

State	Total records on file	Addresses Matched	Addresses Unmatched	Records geo-coded at the address level	%	Records Geo-coded at the Zip-code level	%	Total % geo-coded
Maine	45,381	19,144	26,237	17,828	40%	11,275	25%	65%
Wisconsin	145,733	109,182	36,551	104,286	71%	22,848	16%	87%
Maryland	145,839	45,581	100,258	44,252	30%	7271	5%	35%
Ohio	284,524	139,135	145,389	134,529	47%	17463	6%	53%
Florida	447,360	251,251	196,109	242,085	54%	26,374	6%	60%
Utah	65,317	49,057	16,260	46,633	71%	6,938	11%	82%

12. Summary of Research Findings:

- Six States had a high percentage of establishments missing PLAs compared to the national average. Michigan, Tennessee, Montana, Delaware, Texas, and Maryland were all above 50 percent; well above the national average of 35.8 percent.
- Public Administration and Non-Classified reported a high percentage of missing PLAs with 73.2 percent and 66.4 percent respectively. They accounted for 3.9 percent of the total establishments but 7.6 percent of the total establishments missing PLAs.
- Newer establishments, reported a higher percentage of missing PLAs than older establishments.
- Public sector establishments had a high missing PLA rate relative to private sector establishments.
- Whether a county was rural or part of an MSA had no correlation to missing PLAs.
- Multi-establishments reported a higher rate of PLAs than single establishments.

12. Future Study

Research is continuing to profile availability and accuracy issues. Targeted studies will be fielded in coming months and years. For example, focusing on selected metropolitan areas, such as Manhattan, Seattle, Chicago or Washington D.C. may provide the most cost-effective investment.

13 Conclusion:

The demand for geospatial information is accelerating. As other data sources are geocoded, the potential range of uses studying the interaction of multiple data sets increases exponentially. Within the ES-202 program, efforts to profile the attributes of physical location addresses and begin small-scale, targeted efforts to improve their availability and accuracy will be undertaken within existing resources. Changes to existing forms and processes are being made to improve reporting. The resulting information will prove to be rich sources for research at all levels. Facilitating this research is one of the primary goals for extending the existing utility of the BLS establishment list.